Volunteer Firemen

Professional Journal of the Volunteer Firemen's Section of the National Fire Protection Association

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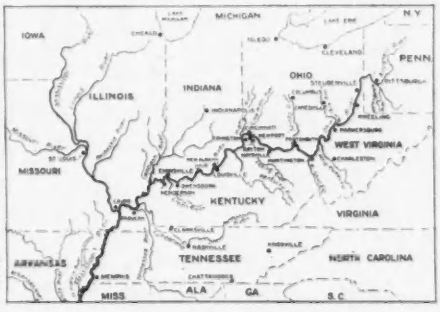
Pictures, Inc.

The fire department couldn't get to these fires in Paducah, Ky. Fortunately surrounding roofs were mostly fire-retardant.

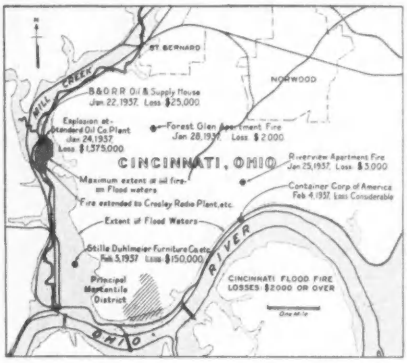
Flood and Fire

Fire Departments Respond to Aid of Ohio Valley Cities in Greatest Mobilization of Fire Fighting Forces in History

FIREMEN were among the forefront of the organized efforts directed toward meeting the great Ohio River flood disaster. Fire never takes a holiday, and with water supplies in many places almost entirely impaired, gas and electric services suspended and with large areas of many communities made inaccessible to fire apparatus by flood waters, firemen in both large and small communities faced the almost impossible task of preventing sweeping fires in inundated districts. This was not the fire departments' only problem during the emergency however as much of the work of rescue of persons endangered by flood waters fell to the firemen. Later as the waters receded came the problems of restoring fire protection and preventing fires from flood damaged wiring and other hazards.



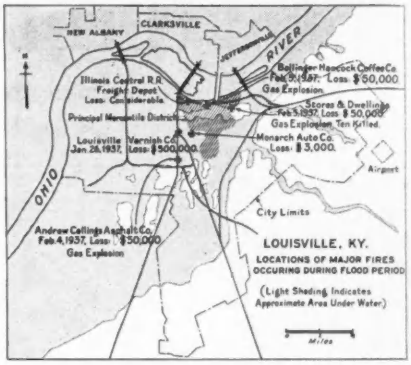
Of special interest is the spirit of unity and friendly assistance shown by the prompt concentration of much needed fire equipment and man-power in the stricken areas by the fire departments from at least nine states. The result was a voluntary mobilization of fire fighting forces probably the greatest in history.


ST. BERNARD
NORWOOD
MILL CREEK
B&O R R Oil & Supply House
Jan. 22, 1937. Loss $25,000
Explosion at Standard Oil Co. Plant
Jan. 24, 1937.
Loss $1,375,000
Forest Glen Apartment Fire
Jan. 28, 1937. Loss $2,000
CINCINNATI, OHIO
Riverview Apartments Fire
Jan. 25, 1937. Loss $3,000
Maximum extent of oil fire on Flood waters
Container Corp. of America
Feb. 4, 1937. Loss Considerable
Fire extended to Crosley Radio Plant, etc.
Extent of Flood Waters
Stille Duhlmeier Furniture Co. etc.
Feb. 3, 1937. Loss $150,000
Principal Mercantile District
CINCINNATI FLOOD FIRE LOSSES $2000 OR OVER
One Mile
OHIO
RIVER

Outside Fire Department Aid to Louisville

Cities from which apparatus was sent to Louisville up to February 3, 1937, typical of the extraordinary mobilization of fire fighting forces in the flood area.

Augusta, Ga.	**1 pumper**
Chicago, Ill.	**2 pumpers**
Jeffersonville, Ind.	**2 pumpers 1 ladder truck**
Harlan, Ky.	**1 pumper**
Laurel, Ky.	**1 pumper**
Lexington, Ky.	**1 pumper**
Madisonville, Ky.	**1 pumper**
Trenton, N. J.	**(men only)**
Waynesboro, N. J.	**(men only)**
Spencerport, N. Y.	**Rescue squad**
Swanson, Ohio	**1 pumper 1 booster truck**
Chester, Pa.	**1 pumper**
Erie, Pa.	**1 pumper**
Harrisburg, Pa.	**1 pumper**
Lancaster, Pa.	**1 pumper**
Philadelphia, Pa.	**2 pumpers**
Pittsburgh, Pa.	**3 pumpers**
Reading, Pa.	**2 pumpers**
Wayne, Pa.	**1 pumper**
Knoxville, Tenn.	**1 pumper**


NEW ALBANY
CLARKSVILLE
JEFFERSONVILLE
RIVER
Illinois Central R.R. Freight Depot. Loss: Considerable
Bollinger-Hancock Coffee Co. Feb. 2, 1937. Loss $60,000 Gas Explosion
Principal Mercantile District
Stores & Dwellings Feb. 5, 1937. Loss $50,000 Gas Explosion. Ten Killed.
Louisville Varnish Co. Jan. 26, 1937. Loss $500,000
Monarch Auto Co. Loss $3,000.
Airport
OHIO
City Limits
Andrew Collings Asphalt Co. Feb. 4, 1937. Loss $50,000 Gas Explosion
LOUISVILLE, KY.
LOCATIONS OF MAJOR FIRES OCCURING DURING FLOOD PERIOD
(Light Shading Indicates Approximate Area Under Water)
miles

ALTHOUGH several large fires occurred, on the whole the fire losses were much less serious than might have been expected. This is a tribute to the effective work of the firemen, public officials, insurance engineers and others who worked tirelessly to maintain fire protection both public and private. In many places there has been no time to make reports but the fragmentary information here presented no doubt gives a typical picture of fire fighting conditions while the Ohio River valley was under water.

The two largest cities seriously flooded were Cincinnati and Louisville and their stories have been largely told by the newspapers. The accompanying maps show the more important fires reported as occurring in these two cities during the flood period. The losses reported are only approximate as final loss figures are not yet available. The fact that several of the Cincinnati fires are shown on the map as occurring outside of the flooded areas does not mean that the fire department had a soft snap in handling them. With the waterworks pumping station out of service and reserve water supplies greatly limited and fast dwindling it was necessary to fight fires with water from tank trucks which accompanied the fire apparatus to fires. Several of these tank trucks were street flushing machines from Cleveland, Ohio. The fire which damaged the Riverview Apartments in Cincinnati was fought by flood water relayed 3000 feet by five pumpers. Special protection for the high value section of the city was provided by pumpers pumping flood water into the separate high pressure fire main system. Areas under water were protected by two small fireboats. One of these was equipped with an 800 gallon pump. Fire alarms were broadcast by radio. A supply of chemical engines and extinguishers was distributed to various hospitals while the water works was out of service. At least one hospital fire was extinguished with this equipment.

The largest fire reported during the flood period occurred in Cincinnati on January 24, when gasoline escaping from tanks of the Standard Oil Company plant on Mill Creek flashed and the fire spread over a large area by means of burning gasoline on the flood waters. Other property damaged by this fire included the Crosley Radio Corporation plant and the Oberhelman-Ritter Foundry Company. Preliminary estimates placed these losses at $1,375,000.

Oil and gasoline tanks provided one of the greatest flood fire hazards. These fuels are so much lighter than water that the flood water readily displaced the contents of the tanks and the oils were carried downstream on the surface of the water. In some cases tank and contents floated down stream awaiting any chance spark to cause a conflagration. At North Bend, Ohio, on January 24, five dwellings some distance from the river were reported destroyed when gasoline from a tank floating down the river ignited.

At Louisville, Ky., the flood covered a far greater proportion of the area of the city than was the case at Cincinnati, approximately 60 per cent of the city being under water. As Louisville is further downstream however there was slightly more time to prepare for the emergency. City Manager Paul Morton of Trenton, N. J., a former Louisville resident, came by airplane to aid in the assembling of the outside fire departments which had volunteered assistance. The Louisville Fire Department consisted of 23 engine companies, 8 ladder companies and 315 men. This force was practically doubled by outside aid as shown in the accompanying table.

THE largest fire in Louisville during the flood destroyed the Louisville Varnish Company plant on January 26, with a loss of approximately $500,000. The fire occurred when flood waters lifted naphtha tanks in a pit in the yard, breaking connections and releasing naphtha, which probably ignited from a boiler fire. The public water system was out of service and the fire department could not reach the fire due to flood conditions. The sprinkler tank was quickly drained.

Other serious fires occurred in Louisville as shown on the map. Three of these were due to gas explosion caused by gas seeping into buildings from flood damaged mains. At one of these explosions which occurred on February 5, ten persons were reported killed and several others injured. At Ironton, Ohio, one of the places worst affected by the flood, a gas explosion wrecked a store and apartment building while water was six feet deep in the streets.

While all fire departments assisting in the flood area deserve commendation, the work of the Chicago Fire Department in the stricken areas of four states, Ohio, Kentucky, Indiana and Illinois is worthy of special mention. Men and apparatus were sent to a number of points and efforts were directed toward fire prevention as well as fire fighting. Also noteworthy was the work of the Egyptian Fire Fighters Association of Southern Illinois which not only aided

Acme
Fire following gas explosion fatal to ten persons at Lousville.

International
Cincinnati firemen rescuing a sick woman from her home.

with men and equipment but also contributed cash to every Red Cross chapter in their area. This Association sent pumpers to the towns of Carrie Mills and Dorsville, Illinois, and also supplied more than 4000 feet of hose for use in conveying drinking water and for fire fighting. Four towns of the Association were completely under water and could not be reached. These were Shawneetown, Mounds, Mounds City and Rosiclare. The pumper at Mounds was under eleven feet of water at the height of the flood. It was being used to pump out a basement when sand put the pump out of service. The flood water came in so fast that Fire Chief Soener had to run for his life. Chief Albert Herring of Murphysboro, Illinois, reported that from Harrisburg, Illinois, across the Wabash River to the Indiana shoreline there was 84 miles of water.

AMONG the outstanding fires reported during the flood were the fires which occurred at Paducah, Ky. On February 2, fire started in a feed and coal company in the North Side business district and spread to a grain elevator, hosiery mills, stables and other property. Fire equipment mounted on a barge proved inadequate and a loss of $75,000 resulted. A roof fire in dwellings in Paducah is shown on page 1. Of 35,000 residents of Paducah all but 900 were evacuated. Fire Chief J. N. Slaughter of Paducah who was injured at a fire on January 19 died on January 25 as flood conditions prevented proper medical attention.

At Huntington, W. Va., on January 24, a motorboat being used to rescue four persons caught fire when someone tossed a lighted match from the boat igniting gasoline on the water. Five persons including the crew jumped overboard and were saved but an aged woman and her granddaughter were burned to death. Huntington, Parkersburg and St. Mary's, W. Va., mounted pumpers on barges to provide protection for flooded areas. In other places such as Evansville and New Albany, Ind., portable pumps were placed in boats. No serious fires have been reported in Evansville but seven pumpers and 75 men from Indianapolis and Terre Haute were on duty there.

A fire destroyed a general store and oil station at Manchester, Ind. Telephone service was suspended and it was necessary to drive to the next town to call aid while a bucket brigade fought the fire. At Carrollton, Ky., a fire started in the projection booth of the Richland Theatre on February 4. Due to low water pressure it spread to a department store and caused an $85,000 loss.

One problem which presented itself to fire department officials after the water went down was the condition of fire department equipment. At Louisville, damage to fire apparatus was reported due to pumping out basements. Part of the pumping, however, was done by steam fire engines brought out of retirement. In some smaller communities the condition of apparatus was serious. At Point Pleasant, W. Va., without permission of the fire chief, all the hose was taken from one truck and part of another and used for street washing. It was left there full of mud and in a frozen condition. The chief stationed the second truck and remaining hose in front of his house where he could watch it. It was necessary after the flood to buy a new pumper and 800 feet of new hose. The Mingo Junction (O.) Fire Department bought a small gasoline pump to pump out buildings to relieve their regular pumper of this work. At Tiltonsville, Ohio, the fire department pumper was damaged by pumping out cellars and new parts had to be ordered. How essentially needless it was to depend on the fire department for such pumping was demonstrated by the few calls received after it was decided to charge five dollars for such special service.

THE flood fire problem did not end with the passage of the flood waters down the river. Wet electrical equipment required careful inspection by fire and electrical department officials before current was turned on. Gas company officials also made careful check in each building they served in order to prevent explosions due to escaping gas. Dr. D. J. Price of the U. S. Department of Agriculture and chairman of the N.F.P.A. Committee on Farm Fire Protection, has issued a warning against fires in barns from the spontaneous ignition of hay which has been wet by flood waters. If the hay shows signs of warming up appreciably (to around 200° F), it should be removed, precautions first being taken to wet the hay and have a hose stream ready to knock down any fire which shows when the hay is opened up. The fire department should be called out before the fire starts.

He Smelled Smoke

That Cigar from the Boss Spoiled Mike's Big Chance But As the Newest Volunteer He Wanted to Make No Breaks

By Strafford Wentworth

MIKE was a volunteer fireman. He had only just been invited to join the company and was anxious not to make a fool of himself by being overzealous or pretending to know anything about fires that he didn't know. He worked for a radio broadcasting station on the ground floor of a new hotel.

One August morning, having a half hour's respite from his job, Mike wandered into the lobby of the studio to hear what was coming through the power speaker. The washed air and comfortable chairs made it a nice place to catch his breath.

There was no one around. He plucked the big cigar the boss had given him out of his pocket and chewed off the end. He smelled it suspiciously. He was always a bit leery of the cigars the boss gave him. Satisfied, he produced a long kitchen match from another pocket and lit up. Another moment he was pulling peacefully and considering a point in the universe (the star Canopus perhaps) as far from his job as any place he could think of.

His comfort was brief. He began to think he was smoking cork. He sniffed the glowing end of the cigar. It had something of tobacco about it, but something more of pitch, tar, wool, cork, and wood slivers. Mumbling something about Mr. So-and-So being a "swell guy," he threw the cigar across the room. It landed neatly in the brightly polished cuspidor. He dropped back in the chair again, less comfortable.

After a moment's haze he realized that the only smell that had vanished with the cigar was that of tobacco. He jumped up and took a hurried look around ending up with still nothing but the smell. It was one of those smokes that smell, but doesn't get seen. Maybe the fire chief could figure it out. Mike called him up and invited him to come over and listen in a bit if he wasn't too busy. He mentioned the smoke with a "by-the-way." The chief said he'd be over.

BY THE time the chief arrived, Mike found himself in an embarrassing position. As far as he could

smell, the smoke had vanished, and he didn't have any tea or cakes to offer. But the chief was a conscientious sort and thought there might have been something. He peeked in all the corners and tried to surprise the smell by pounding on the walls and partitions, but it stayed dead. Finally he left, thinking Martha had burned some cakes out near the air-conditioning equipment intake. Mike went back to work in the control room, wondering whether the cigar was worth salvaging.

About three hours later the deputy chief who had nothing to do decided he'd take a run over and find out if his smelling was any more acute than the chief's. Mike told him it must have been his dream state: the boss's cigar had drugged him. The smell was an illusion.

But secretly Mike couldn't get the idea out of his head that there had really been something to that smoke smell. He began to wonder just what sort of system caused the air to cool off and come out all those little vents. In fact he got so interested that he spent his lunch hour digging out the plans and blueprints of the installation.

The first thing he found out was that the ceiling was not a ceiling at all, but only what the plans called a "false fibre-board suspended ceiling." Hidden behind this was a jumble of wires and ducts. He noted that the air ducts were made of "felted cork with oil binder," whatever that was. It sounded as though it would make a nice smell. The ducts covered the entire ceiling of the broadcasting studio, but did not extend into the hotel. That meant the smell must have been generated inside the studio. What part of the space was left between ceilings was filled up with rock wool. That must have been to keep the sound out or in, Mike thought. Right near the power speaker the wires to it crossed one of the ducts. Mike remembered putting a new fuse in the light and speaker circuit every now and then. Maybe there was a short circuit up in there. He checked up on it with an ammeter.

Mike went back to work with the idea that even if there hadn't been any smoke there should have been. That speaker circuit was using up twice as much current as the bulbs and speaker specifications said. Where was the rest of it going? He thought he'd go and tell the boss about it when he got off at seven.

AT ABOUT six o'clock in the middle of the Brummelmasser Hot Spot program, Mike noticed that the ammeter to the power speaker had jumped off scale. It stayed there a second, and then flopped back to zero with a bent pointer. Mike went out in the lobby to investigate. The speaker had cut out, dead. Mr. Brummelmasser was wondering very loudly what the trouble was. He didn't have to wait long. Mike pointed to streams of smoke emerging from all the ventilators, just before it got too thick to show anybody anything. That point of the finger was accomplished with the left hand. The rest of him was heading for the telephone. He got to it just ahead of three announcers and one technician who all told him to call the fire department. The air ducts had spread the smoke all through the studio.

Mike's fellow volunteers arrived so fast that he thought they must have been waiting around the corner. The new fire truck pulled up in front of the building just as old Mr. Brummelmasser gave up arguing to the melodorous smoke cloud about his radio time. Everyone else in the studio had long before found a door. Five firemen charged into the building. A few mo-

ments later five more firemen went in with Mike and brought them out looking very sleepy. Those who could still talk said someone was pounding them on the head. That's what comes of "felted cork with oil-binder," Mike thought, as he went back in.

There was a slight flicker of flame in the studio, but, through the smoke he couldn't tell just where. It was up on the ceiling though. Probably by that speaker. Not being dressed for the job, he hadn't taken any hose line, but he watched the others get theirs working. Pretty soon the smoke began to come a little more slowly. Then there were no signs of red any more. The smoke smell changed to that of wet burned wood. Mike went out again.

WHEN the smoke had cleared, Mike went in with the chief on his inspection. A newspaper man trailed them both. They went over to the speaker first. The false ceiling had burned through. You could see the charred joists. About three feet of flexible cord that led from the conduit outlet box to the speaker had all the insulation burned off it.

"That's what caused the fire: a short circuit," the chief told the newsman. Mike told himself mentally that he had known it from the first.

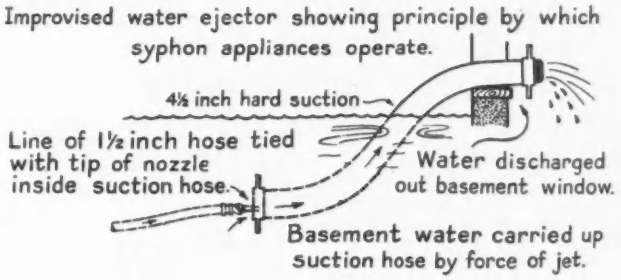
"What do you think bowled your men over, chief?"

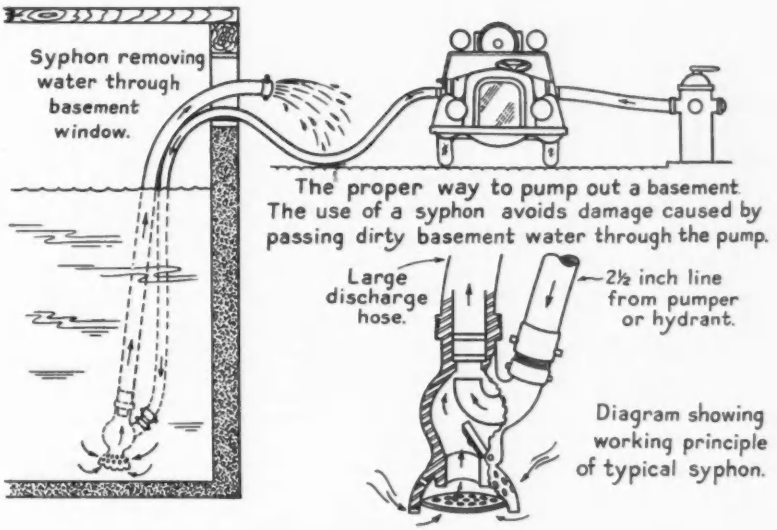
"Well, those ducts up in there are wood. You can see the burned end of one sticking out. To make them airtight, they're treated with oil. The whole works is stuck behind this fibre board ceiling where you can't get at it. The fire started in the joists from the short circuit and burned quietly enough until it suddenly got through to the inside of one of the ducts. Then things started popping, and the air conditioning system fanned and fed the fire and spread the smoke around. That smoke was mean. I'm not surprised the boys couldn't take it."

"And the damage?" The newsman was scratching at his pad.

"About five thousand, I should say, by the time the equipment is fixed and a new roof put on. Have to get a bit more furniture, too; this upholstered stuff doesn't like water."

Mike went out on the street again thinking if it hadn't been for that cigar the boss wished on him he would have trusted his smeller in the first place, and made his first big strike as a member of the fire company.


Improvised water ejector showing principle by which syphon appliances operate.
4½ inch hard suction
Line of 1½ inch hose tied with tip of nozzle inside suction hose.
Water discharged out basement window.
Basement water carried up suction hose by force of jet.


Syphon removing water through basement window.
The proper way to pump out a basement
The use of a syphon avoids damage caused by passing dirty basement water through the pump.
Large discharge hose.
2½ inch line from pumper or hydrant.
Diagram showing working principle of typical syphon.

Fire Department Syphons

WHEN a citizen's cellar is full of water, he may call the fire department to pump it out. Most fire departments resist this kind of service but if the citizen happens to be the mayor's brother or something it may do no good to argue that using the pumper on dirty water won't do it any good. That grit in the water may abrase the moving parts and valves of the pump is a minor consideration too technical to bother him. He would be bored if told that under such conditions the slip will become excessive and result in materially reducing the capacity and efficiency of the pumper.

But the use of a syphon usually makes the pumping job possible without risking damage to the pump itself. For with a syphon none but clean water from a hydrant or other source goes through the pump itself. The principle of syphon is illustrated by the improvised arrangement of a 1½ in. line and suction hose. The flowing stream from the pumper gives impetus and momentum to substantial amounts of the surrounding water and carries it from the basement or other low point where it is not wanted. The principle of operation of the other device is identical, but is arranged so that both impeller and discharge lines may be lowered through a small opening.

Reports from the flood area of the Ohio River Valley tell of towns where fire department pumpers were seriously damaged by pumping water filled with sand and débris from cellars of buildings which had been flooded. While hydrant water or some other clean water is necessary to make a syphon of value, there were many cases where they might have been used and would have paid for themselves. Besides removing flood water syphons prove useful after fires or when heavy rains or water from broken mains has entered basements.

Buildings Under Construction

When Being Put Up or Taken Down Hazards Are Many and No Such Building is "Fireproof"

THE $2,500,000 Fall River (Mass.) conflagration which destroyed 38 buildings and damaged 69 others nine years ago started in a vacant mill which was being taken down. The upper two floors had already been dismantled and the automatic sprinkler piping and fire doors had been removed from the entire property. Holes had been cut through floors to remove machinery. The weather was cold and workmen had heating fires in various parts of the building.

One of these heating fires was in a salamander made from an empty 50-gallon steel oil drum. According to the report of the State Fire Marshal, the heat from this improvised salamander ignited the wooden floor beneath it. The fire was not discovered until it had made great headway. Oil-soaked floors and the absence of any protection of vertical or horizontal openings caused the fire to spread rapidly and a high wind and near-zero temperature combined to make fire fighting difficult.

This is just one example of the many ways in which conflagrations can start when buildings are being put up or taken down. Records of over one hundred fires starting during construction operations on file in the N.F.P.A. Department of Fire Record show that about one-third are caused by salamanders. Acetylene torches, hot rivets, and careless smokers also rank high.

Every fire department which is on its toes knows that buildings in the course of construction or being dismantled have many additional hazards not found in completed and occupied structures. That is why they include such structures in their inspection program.

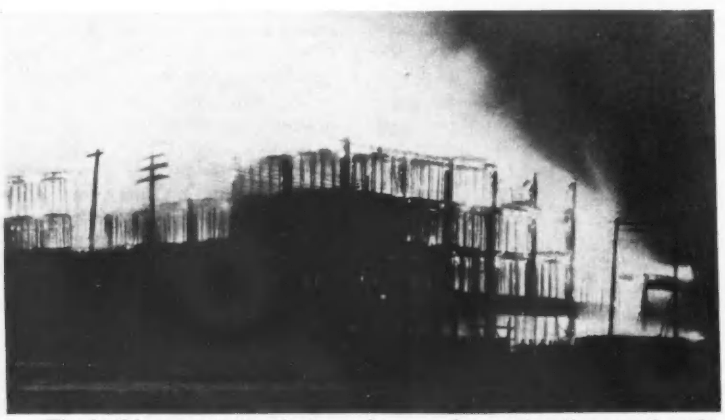
Large amounts of combustible scaffolding, building materials, and temporary appliances such as electrical wiring increase the fire hazard. Defective temporary wiring was thought to be the cause of the church fire in New York City a few years ago which swept through combustible scaffolding and did a damage of nearly $2,000,000. It is best that supporting members of scaffolds be made of metal, but the platforms may be of lumber that has been flameproofed to make it slow-burning. On well-managed jobs, combustible forms and refuse in large quantities are not allowed to accumulate on floors.

Temporary heating appliances such as salamanders and temporary woodwork, therefore, seem to offer the greatest possibilities of severe fire damage. Salamanders are safe to use if they are substantially constructed, not readily overturned, and fuel is restricted to the use of coal, coke, or kerosene. Also, safety requires that they be under the constant supervision of an attendant on every floor where they are in use. A clearance of at least two feet horizontally and six feet vertically between the heater and combustible material of any kind is desirable.

A few years ago in Hudson, N. H., a town of about 3,000 population, a reinforced concrete school building was being constructed. To prevent freshly poured concrete from freezing, the heat from several salamanders was retained by canvas tarpaulins hung on walls. Heat from the salamanders apparently caused the fire which was not noticed before it was well advanced. In spite of the absence of wind and the wet condition of the woodwork as a result of several days' rain, the fire spread rapidly and three workmen had difficulty in escaping. No water barrels or chemical extinguishers had been provided. There was no adequate water supply available. The pumper from the local fire department obtained a suction supply from a near-by swamp and was able to furnish one stream, but by that time it was too late to be of use. Raging unchecked, the fire consumed the wooden forms and near-by supply sheds, doing a total damage of about $225,000.

In addition to seeing that fire hazards are kept at a minimum in buildings under construction, the fire department has to make sure that at all times they are able to get access to any part of the structure and that the needed facilities are there for fighting the fire. This point was muffed in as large a city as New York a few years ago. A new hotel was being erected, a fine "fireproof" structure covered with a profusion of combustible wood scaffolding. The fire department did not then (as it does now) require that standpipes be carried up and kept in service as the building is erected. In "skyscrapers" standpipes are the only source from which water is available on the upper floors. The standpipes were in position, but when the fire department pumpers put water through them for hose streams on upper floors, the water all ran out of the tops of the standpipes which were uncapped. This expensive lesson cost $500,000.

So keeping standpipes, automatic sprinklers and other private fire pro-



Fire in this concrete terminal warehouse under construction was thought to have been started by a salamander. The large amount of wooden forms made excellent fuel for the flames.

View of the Fall River, Mass., conflagration of Feb. 2, 1928. The fire started in a mill which was being dismantled, the ruins of which are shown at the extreme left.

tection in service is an important part of the problem of construction operations. Proper safeguards require that first aid fire appliances of non-freezing type (or protected against freezing in winter months) be provided in shanties, storage spaces, and on each floor at the working stairway where most of the workmen pass up and down. Another requirement is to provide free access from the street to fire hydrants and outside connections to standpipes and sprinkler systems.

Surrounding combustible materials and floors can be protected from sparks from welding and cutting processes by using asbestos blankets, water, sand, or other fire-resistive materials. It is good practice not to store or handle flammable liquids in a building being worked upon except in an approved portable tank wagon or safety cans. It is also a good idea to enforce "No Smoking" rules, at least in the most hazardous parts of the building. An alert watchman on duty at all hours can do much good in preventing fires from starting or extinguishing them.

The N.F.P.A. Committee on Construction Operations has recently issued good-practice requirements covering the fire hazards of buildings in the course of construction and recommending methods of fire prevention and control. A copy of the Committee's 16-page illustrated pamphlet will be sent to any reader on request. Although most buildings constructed in the smaller cities and towns are not as large as those in the larger cities, proper fire prevention measures are just as important in the smaller places because of the possibility of overtaxing the fire department and water supply in case of fire.

△ △ △ △ △

Discussion Subjects

55

Q. Discuss methods of removing water from basements or cellars.

A. Syphon devices in which a stream of water is used to create a suction are employed to raise water out of basements or cellars. An improvised arrangement which shows the principle of syphons and a manufactured device which is convenient to use are described and illustrated on page 5.

56

Q. What are the most frequent causes of fires in buildings under construction and how may they be prevented?

A. The records show that over half the fires in buildings under construction are caused by salamanders and by sparks from torches and hot rivets igniting planking or canvas. Suggestions as to how to prevent them are given in the article beginning on the opposite page.

Problem Questions
FOR MARCH

Suggested for discussion at company and department meetings this month

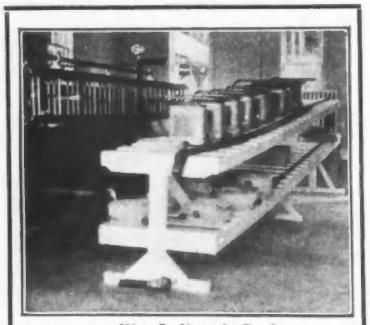
57

Would there be advantages of having a system of signals for use between the pipeman and pump operator?

58

Discuss plans for reducing the number of grass and brush fires this spring.

Watch for the answers in the next issue of VOLUNTEER FIREMEN



Nine Indians in Rack at Long Lake, N. Y. Fire House

INDIAN FIRE PUMP

EASY TO FILL

Large opening permits tank to be quickly filled. Only clear water used. Can be refilled constantly on the fire line. No injurious chemicals.

NDIAN FIRE PUMPS are widely used by rural and city fire departments to extinguish grass, roof, rubbish and spot fires. Everyone concerned with Fire Control should be familiar with these 5 gal. pumps that use clear water only. Metal tanks will not rot or puncture. Brass pump throws strong 50 ft. stream. Ventilated tank keeps carrier's back dry. Curved tanks of INDIANS fit back comfortably. No rubbing or chafing. Truck carrying rack available. INDIANS are strongly built of best materials. All seams double locked and soldered. Write today for full details and copies of testimonials.

CCC Boys Unloading Indians to Fight Grass Fire Near Camp

D. B. SMITH & CO.
416 Main St., Utica, N. Y.
Pacific Coast Agents
Hercules Equip. & Rubber Co.
550 Third St., San Francisco, Cal.
Pacific Marine Supply Co.
1217 Western Ave., Seattle, Wash.
Western Loggers' Machinery Co.
302 S. W. 4th St., Portland, Oregon

FIGHT FIRE WITH INDIANS

STEEL FOLDING CHAIRS

- Fully upholstered removable back and seat.
- Baked enamel finishes in choice of colors.
- Planned and built like a bridge... will support eight hundred pounds.
- Folds and stacks flat to a width of one inch.

$16 A DOZEN Offered, while the quantity lasts, at the direct factory clearance price.

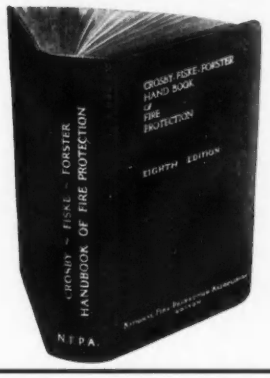
WRITE FOR DETAILS AND SAMPLE CHAIR

REDINGTON CHAIR COMPANY
SCRANTON, PENNSYLVANIA

OVER 4300 COPIES SOLD LAST YEAR

Eighth Edition
1154 pages; 4¼ x 6½
242 illustrations, 161 tables
Handsomely bound
$4.50 postpaid

National Fire Protection Association
60 Batterymarch Street
Boston, Massachusetts



Membership Plan

Volunteer Firemen's Section, National Fire Protection Association

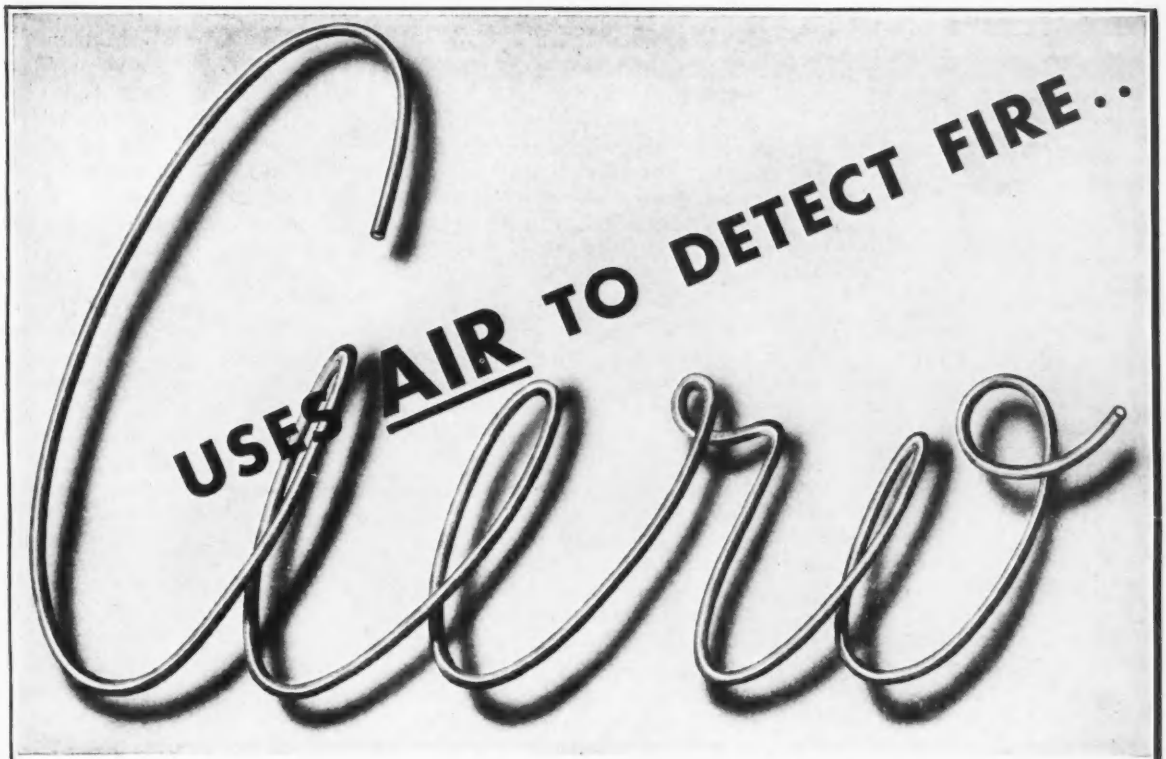
WHERE 20 or more firemen in a volunteer company or department affiliate with the Volunteer Firemen's Section the cost is 50 cents a year *per man*. Each fireman will receive one copy of VOLUNTEER FIREMEN, the monthly journal of the Volunteer Firemen's Section, mailed regularly to his home address. The company or department automatically becomes a member of the National Fire Protection Association and is entitled to full privileges of membership. All the literature regularly issued to N.F.P.A. members is mailed to headquarters of the company or department.

Membership may be applied for by one member of the company or department collecting 50 cents for each of the 20 or more members and making a single remittance for the group, or the company or department may take a membership for its men and make a single remittance from the company or department treasury.

Companies With Less Than 20 Members

Because of the large amount of material mailed to members, not less than $10.00 can be accepted from any company or department for membership dues. In the case of companies or departments with less than 20 men this means that the cost divided among them will be slightly higher per man. Of course, some such companies or departments may prefer to make a single remittance of $10.00 from the company or department treasury. In other cases a few interested citizens, not members of the company or department, may be glad to contribute 50 cents apiece to make up the required minimum of 20, so that the members may secure the rate of 50 cents per man.

These companies or departments have full privileges of N.F.P.A. membership as above, and each member receives the monthly magazine, VOLUNTEER FIREMEN, at his home.



A pneumatic system, the Aero Automatic Fire Alarm uses AIR as its fire detecting element. Lengths of small-bore copper tubing, no bigger around than a match, attached to the walls or ceiling, are the vital part of the physical equipment. When fire starts, the air in this tubing expands, causing the alarm. Since the action depends on the *rate at which the temperature rises*, Aero need not wait for a predetermined "dangerously high" temperature. It detects fire *when it starts*, and automatically summons the fire department direct to the scene.

The greater speed of this pneumatic, rate-of-temperature-rise system in detecting fire is proved by Aero's performance record. During the past 10 years, fire losses in Aero protected properties have averaged less than three cents per hundred dollars of insurable values.

The Aero Automatic Fire Alarm System is installed, maintained and constantly supervised by A.D.T. It is available with Central Station Supervision in 350 cities; elsewhere, with direct-to-fire-department connections. No capital investment is required for equipment or installation. Descriptive booklet sent on request.

Other A.D.T. Central Station Fire Protection Services include Sprinkler Supervisory and Waterflow Alarm Service; Watchman Supervisory and Manual Fire Alarm Service.

AERO AUTOMATIC FIRE ALARM

Controlled Companies of AMERICAN DISTRICT TELEGRAPH COMPANY

155 SIXTH AVENUE • NEW YORK, N. Y.

A NATION-WIDE PROTECTION SERVICE AGAINST FIRE, BURGLARY AND HOLDUP

A·D·T

Volunteer Firemen

Professional Journal of the Volunteer Firemen's Section of the National Fire Protection Association

Published by the National Fire Protection Association, a voluntary non-profit organization, 60 Batterymarch Street, Boston, Massachusetts, U.S.A. Franklin H. Wentworth, Managing Director. Percy Bugbee, Business Manager. Horatio Bond, Managing Editor.

Volume 4 **March, 1937** Number 3

We Predict—and We Hope We're Wrong *1. A major conflagration is considerably overdue and may come during 1937.* Houston, Texas, is the most likely candidate, although Buffalo and Seattle, both with large areas of wooden shingle dwellings, should also be considered possibilities. The fire department in Minneapolis is answering over 600 alarms a year to wooden shingle roof fires, while the fire department in Detroit goes to over 3000! Both Detroit and Minneapolis invite a conflagration. In both, the city councils have turned down ordinances proposing to prohibit wooden shingle roofs. Both disregarded advice of fire department and building officials. None of these cities, however, can quite reach Houston's claims to the probable conflagration title. It has the conflagration hazard of wooden shingle roofs. Not only are wooden roofs unregulated, but there has been for many years practically no other enforcement of building laws. Its water supply is fundamentally inadequate and has been put out of service at numerous times by freeze-ups and floods. The local fire department is undermanned and underequipped. Low pay and political indifference to the department needs have had their demoralizing effect. All of these factors add up to impending fire disaster for Houston.

2. The number of large fires may increase during 1937. Already a group fire in Altoona, Pa., and a department store fire in Muskegon, Mich., have provided locations which will appear on the N.F.P.A. Annual Conflagration Map for 1937. A burned business block in the village of Hanover, N. H., is typical of large fires which will occur in the smaller communities. There will be more large fires in 1937 for the simple reason that there is more to burn. For another thing, commodity prices are rising so that even if no more is burned this year than last, the reported dollar losses will be greater. More fundamentally, however, cities have neglected their fire departments and other public fire protection about as long as they can without seeing such neglect translated into increased fire losses. The widespread pay cuts must be restored to keep pace with increased living costs and adequate manpower must be provided. Obsolete apparatus must be replaced. These impending large fires may strike any community. The fire department need not be taken unawares for most of the places where such fires may occur are easily recognized by the experienced fireman. These "target hazards" will be given special attention by the fire department in its inspection work.

3. There may be more incendiary fires. Incendiary fires have been few of recent years and such losses have been low because we have been on a business upgrade. The time is approaching when there will be recessions in this upswing of business. Study of business cycles show that such recessions always result in more arson and fraudulent burnings. There will be plenty of work for the staffs of state and provincial fire marshals and for the members of fire departments assigned to fire investigation work. Fires during 1937 will be especially worth investigating.

100 Percent Membership Chief Edward Clawson of New Kensington, Pa., in January sent in the application of his fire department for membership in the Volunteer Firemen's Section. It listed 130 names, the entire membership of the department. All of these men, Chief Clawson reports, are enthusiastic about VOLUNTEER FIREMEN. This would be a record enrollment but for the fact that it is topped by the fire department of Oceanside, Long Island, N. Y., which has been a member for some time. Oceanside's enrollment boasts 133 names. These are alert and progressive departments. Among the numerical leaders should also be mentioned the fire departments of Akron, N. Y., Evanston, Wyo., Franklin, N. H., Garden City, N. Y., Horicon, Wis., Richmond, Me., the fire brigades at Amherst, N. S., and the Atlantic Sugar Refineries of Montreal, P. Q., and the Blue Hills Volunteer Fire Department of Bloomfield, Conn.

New Members and Renewals During the past month 377 firemen from the 18 fire departments or companies listed below enrolled in the Volunteer Firemen's Section for the first time. In addition, the percentage of companies which renew membership in the Section continues to be high. Last month 1342 men from 61 companies sent in applications to renew their memberships for the coming year. The total membership is now 10,812.

Yuma Fire Department No. 1, Yuma, Arizona.

Coeur d'Alene Fire Department, Coeur d'Alene, Idaho.

Rembrandt Fire Department, Rembrandt, Iowa.

Sibley Volunteer Department, Sibley, Iowa.

Webster City Fire Department, Webster City, Iowa.

West Liberty Fire Company, West Liberty, Iowa.

Chester Volunteer Fire Department, Chester, Nebraska.

Wahoo Fire Department, Wahoo, Nebraska.

Navesink Hook and Ladder Company, Navesink, New Jersey.

Roselle Fire Department, Roselle, New Jersey.

Wharton Fire Department, Wharton, New Jersey.

Mottville Fire Company, Mottville, New York.

Enfield Fire Department, Enfield, North Carolina.

Groesbeck Volunteer Fire Department, Groesbeck, Ohio.

Falls View Hose Brigade, Niagara Falls, Ontario.

Battleford Fire Department, Battleford, Saskatchewan.

Rotan Volunteer Fire Department, Rotan, Texas.

Alamo Heights Volunteer Fire Department, San Antonio, Texas.

Mack

Modernize with MACK in 1937

Modern throughout, this Mack Fire Apparatus Type 55 Quadruple Combination was built for Norwood, Pa. It carries 240 feet of ladders and 1000 feet of hose. The pump, of 600-gallon capacity, is of the pressure-volume centrifugal type, fully inclosed. Booster tank has 100-gallon capacity. The equipment tray beneath the ladders is accessible from either side and is electrically lighted. A "Light From Mars" oscillating warning light surmounts the streamlined gasoline tank.

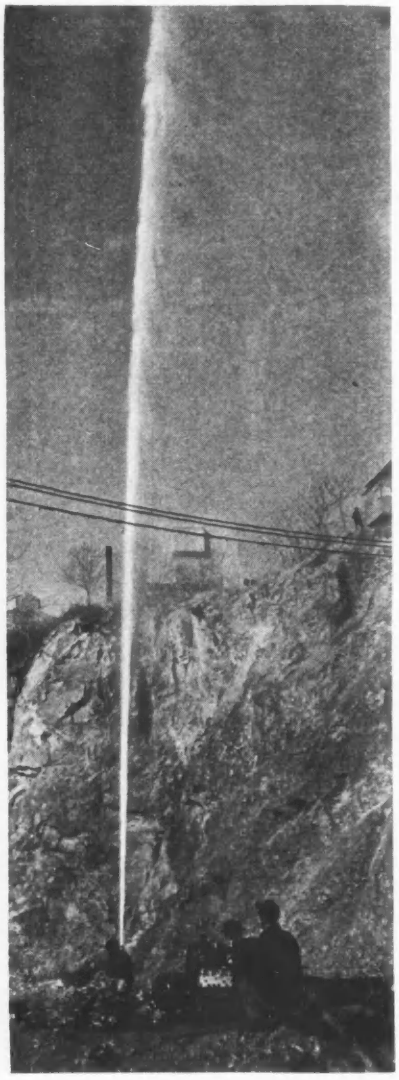
50% of America's fire apparatus is obsolete! This startling fact was revealed in a survey of 600 cities, recently made by "Fire Engineering."

Many municipalities, realizing the danger of inadequate, old-fashioned equipment, will modernize in 1937. It will be the broadest modernization movement in fire fighting history—and again Mack is setting the pace.

Apparatus purchased this year must measure up to the standards of years to come. Here, Mack excels. Mack has the facilities to build the finest in fire apparatus—*and does*. Modern in construction *and* in performance, Macks will keep saving your department money for years, through greater stamina, utmost dependability, and least depreciation.

MACK TRUCKS, INC. • FIRE ENGINE DIVISION • NEW YORK CITY

Within the Means of the Smallest Community — Useful in the Largest



Pumping 600 G.P.M. at 120 Lbs.

HALE UNIVERSAL PUMPER

Hale Type "F" Pump—Ford V-8 Motor 85 Horse Power

Has Successfully Passed Underwriters' 12-Hour Endurance Test for a 500-Gallon Rating

A sturdy compact unit suitable for many types of Fire Service — Booster — Standby — Major Pumping — Sump Pumping, etc. Operates efficiently from draft or from hydrant.

May be mounted conveniently on any suitable chassis without engineering complications. Can be used to pump from tank while vehicle is in motion, with ability to carry any desired pressure independent of road speed.

Also available mounted on two wheel trailer — complete with suction hose, strainer, gauge, gas tank, battery, etc.

OPEN THROTTLE ABILITY

From Draft	From Hydrant 50 Lbs. Flowing
800 Gallons Per Minute at 70 Lbs.	850 Gallons Per Minute at 100 Lbs.
620 Gallons Per Minute at 120 Lbs.	750 Gallons Per Minute at 130 Lbs.
500 Gallons Per Minute at 160 Lbs.	500 Gallons Per Minute at 215 Lbs.
400 Gallons Per Minute at 193 Lbs.	390 Gallons Per Minute at 250 Lbs.
300 Gallons Per Minute at 230 Lbs.	
250 Gallons Per Minute at 250 Lbs.	

PRIMING

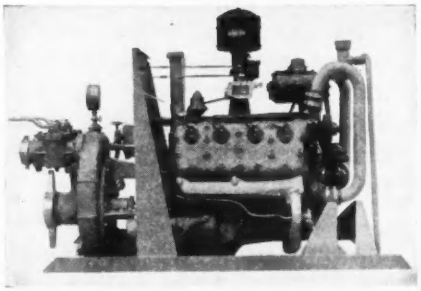
A new and original Hale design—patent pending. The simplicity, the reliability and the effectiveness of this priming system make this pumping unit more versatile, more useful and far more dependable than any unit previously available.

Simple — Reliable — Durable
Extremely Low Maintenance Cost

Hale Fire Pump Company, Inc.

Conshohocken, Pennsylvania

BUILDERS OF QUALITY FIRE ENGINE PUMPS. ROTARY PUMPS FROM 100 TO 1250 G.P.M. CENTRIFUGAL PUMPS FROM 200 TO 1500 G.P.M.



Hale Type "F" Pump with Ford V-8 Motor.

Protected Ship Avoids "Morro Castle" Fate

IN 1934 the loss of 125 persons on the flame scarred steamship *Morro Castle* shocked the nation with revelations of combustible construction and unpreparedness for fire at sea.

A far different story can be told of the morning of January 28, 1937, when during a storm at sea a fire occurred on the $3,500,000 Clyde Mallory liner *Shawnee* carrying 190 passengers from Florida to New York. The first alarm was sounded by an automatic fire detector system for a fire in cotton stored in the hold. Seventy-seven 50-lb. tanks of carbon dioxide gas turned into the hold controlled the fire so that the vessel was only delayed one hour.

▽ ▽ ▽ ▽ ▽

NEW CATALOGUES

This department is for the convenience of readers who wish to be advised of new products or services in the fire field. When writing for catalogues please mention VOLUNTEER FIREMEN.

American District Telegraph Company, 155 Sixth Ave., New York, N. Y. "Aero Automatic Fire Alarm", 28 pages. Description of "Aero" fire alarm system, its applications and operation.

American - LaFrance and Foamite Corporation, Elmira, N. Y. "Modern Fire Fighting Equipment", Catalogue No. 29, 176 pages. Listing a complete line of fire department tools and appliances.

American Steam Pump Company, Battle Creek, Mich. Bulletin No. 75 (Edition No. 4). Data on Barton pumps and fire streams.

Benjamin Electric Manufacturing Company, Des Plaines, Ill. "A Manual of Factory Lighting Practice", 36 pages. Including lighting equipment for spray booths and other locations where there are flammable vapors.

Buffalo Fire Appliance Corporation, 44 Central Ave., Buffalo, N. Y. "Buffalo Fire Apparatus", Catalogue No. 35, 16 pages. Line of pumpers, quadruple combinations, ladder trucks, and special apparatus.

Burroughs Wellcome and Company, 9 and 11 East 41st St., New York, N. Y. "First-Aid for Industry", 48 pages. First-aid equipment and supplies.

California Fire Extinguisher Company, 69 Main St., San Francisco, Calif. "Forest Fire and Fire Trail Tools", 4 pages. Axes, brooms, shovels, and other tools for forest fire fighting.

W. S. Darley and Company, 2810 Washington Blvd., Chicago, Ill. "Everything for Fire Departments", Catalogue No. 108, 83 pages. Complete line of fire department apparatus, equipment, and supplies.

Federal Electric Company, 8717 South State St., Chicago, Ill., Bulletins Nos. 55 and 56. Complete details of Federal sirens.

Gamewell Company, Newton Upper Falls, Mass. "Vitaguard", a manual, 40 pages. A complete description of the Vitaguard fire alarm system for volunteer fire departments and industrial plants.

Hale Fire Pump Company, Inc., 708 Spring Mill Ave., Conshohocken, Pa. "Hale Fire Engine Pumps", 29 pages. Line of rotary and centrifugal pumps.

Mine Safety Appliances Company, Braddock, Thomas and Meade Sts., Pittsburgh, Pa. "Industrial Safety Equipment," Catalogue No. 5-B, 127 pages. Safety equipment including gas masks, inhalators, helmets, and first-aid supplies.

Pyrene Manufacturing Company, Newark, N. J. "The Newest Development in Fighting Fires", Circular No. 161, 4 pages. Description of the "Phomaire" play pipe for making foam mechanically.

M • S • A

FIREMAN'S HELMET

. . . Compare it with any other!

By the verdict of departments from coast to coast, the M.S.A. Fireman's Helmet has *everything!* It makes a trim, smart appearance on parade, and in actual service it has *extra* strength for protection against tremendous blows; plus unusual lightness and comfort, insulation against electric shock, and immunity to the softening effect of water or chemicals.

• We invite you *to test for yourself* the all-around superiority of the M.S.A. Fireman's Helmet. At your request, we'll gladly arrange an actual demonstration for you.

MINE SAFETY APPLIANCES CO.

Braddock, Thomas & Meade Sts. · Pittsburgh, Pa.

District Representatives in the Principal Cities

1 GALLON—DUPLEX PUMP

"CAPTAIN"-FYR-FYTER

AN IDEAL EXTINGUISHER FOR VOLUNTEER FIRE DEPARTMENTS

Here is the equivalent of four 1-quart extinguishers built into one thus making this large quantity of vaporizing liquid available without running for another extinguisher when more than the average size blaze is encountered. This is but one of the complete line of Fyr-Fyter Extinguishers each of which have exclusive merits which stamp them as superior.

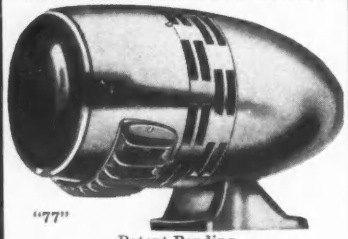
DEALERS WANTED

If you are interested in adding to your income by spare time work or in building a permanent business for yourself without investment in stock, fixtures, etc., write for our new Dealer's Plan to

FYR-FYTER COMPANY

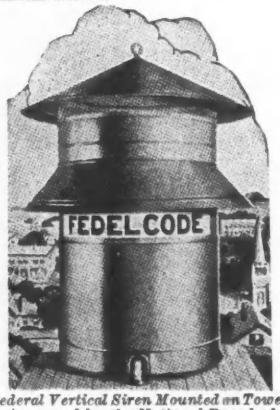
Dept. 20-15 DAYTON, OHIO

Introducing
FEDERAL "77"
DOUBLETONE,
LONG ROLL SIREN
WITH RED FLASHING LIGHT



"77"
Patent Pending

Here is a siren with two distinct tones—a high, piercing tone to penetrate closed cars with a shriek for instant action—and a low, carrying tone that clears traffic for blocks ahead. To add to the carrying power, the frequencies of the two tones cross at regular intervals to produce an extra weighted beat that rolls ahead like the third wave at the seashore. You get two tones and triple power! And combined with this are the features of our famous C-5 Coaster Siren—the brilliant red or green flashing light beam, enabling traffic to both SEE and HEAR your warning—long roll of more than TWO MINUTES after current is shut off—grease sealed ball bearing motor — all-chrome finish. Write for New Bulletin No. 56.



Federal Vertical Siren Mounted on Tower. Approved by the National Board of Fire Underwriters.

Federal VERTICAL Sirens are most practical because

(1) They distribute sound in a wide range in all directions.
(2) Rugged in construction to withstand all kinds of abuse.
(3) Entirely weatherproof housing finished in Red Duco withstands sleet, rain, hail and dust storms.
(4) They are equipped with special high speed, ball bearing Federal Siren motors.

Write for Bulletin No. 55 for complete details.

FEDERAL ELECTRIC CO.
8717 So. State St. Chicago, Ill.

Can You Use Ten Dollars?

If You Can, Submit Your Story in Pyrene Letter Contest — Cash Prizes This Month

SEND in your experience. You may win a prize next month offered in this contest co-operatively by the Pyrene Manufacturing Company of Newark, N. J., and VOLUNTEER FIREMEN. The purpose of this contest is to bring out lessons which may be learned from actual fires and to stress the value of extinguishers in reducing losses. Don't forget to give the size of extinguisher used.

FIRST PRIZE — $10.00

JOHN D. FIRN, No. 4,
Volunteer Fire Dept., Cornwall, Ont.

Owe Their Lives to Extinguisher

"Another man and I were driving a gasoline motor launch on the St. Lawrence River when the carburetor began to leak. Before I could fix it, a spark from the magneto ignited the gasoline and in an instant the boat was a blazing inferno from end to end. We were one-half mile from the shore.

"While my companion yelled for help, I picked up the burning pike pole and jabbed it into the top of a carbon tetrachloride extinguisher which was at the stern. Pulling the extinguisher back through the fire, the liquid spilled and soon the fire was under control. The 20-gallon tank of gasoline was not touched by the fire. We owe our lives to the extinguisher as neither one of us could swim a stroke."

SECOND PRIZE — $3.00

CLARENCE C. SMITH, *Chief,*
Fire Department, Dickson City, Pa.

Valuable Blueprints and Records Saved

"One morning we were called to the new Junior High School which was under construction. We found flames cutting off the entrance to the cellar where the contractor had his supplies and his blueprints.

"We grabbed our two 2½-gallon foam extinguishers and played the contents on two barrels of gasoline which were burning. In a few seconds we got into the cellar and had the entire fire under control. The blueprints and office records were saved."

THIRD PRIZE — $2.00

CHARLES HAMM,
Fire Department, Winfield, Kan.

Extinguisher Does Double Duty

"We answered an alarm about 8 o'clock one evening from one of our theatres. When our truck crossed a water-filled side street, water splashed over the motor and ignition wires, drowning out the motor. The driver immediately pumped several strokes of carbon tetrachloride from a 1-quart extinguisher on the wet wiring. Since this liquid evaporates very quickly, it took up the moisture from the wet wires, and we were on our way again.

"This same extinguisher was then used to extinguish the theatre fire which was in the electric control panel, caused from a short circuit. A carbon tetrachloride extinguisher was used because its contents are a non-conductor of electricity. This shows that certain types of extinguishers are needed for certain types of fires in order to keep fire losses low and make friends with the property owners."

HONORABLE MENTION

J. Q. BUCHHEIT, *Chief,*
Fire Department, Sylvania, Ga.

BLAIR F. SIMONS, *Secretary,*
Volunteer Fire Dept., Fredonia, N. Y.

JOHN KRAFT,
Volunteer Fire Dept., Rio Vista, Calif.

CONTEST RULES

1. Contestants in the Pyrene Prize Letter Contest must be members of their local fire department.
2. Letters are to describe actual experiences where any approved fire extinguisher of any make has saved lives or property.
3. Trade names may be used but will be deleted in publication. Publishers reserve the right to edit winning letters to permit publication.
4. Each contestant automatically vouches for the truth of the facts presented from his own or others' experience.
5. Only one letter may be submitted each month.
6. Letters must be legibly written in ink or typewritten on white paper, one side only. Preference will be given to letters not over 250 words in length.
7. Letters received after the 8th of the month will be judged in following month's competition.
8. Monthly prizes in cash will be: 1st, $10.00; 2nd, $3.00; and 3rd, $2.00.
9. Address contest letters to Pyrene Prize Letter Contest, National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

On Guard

Fire Alarm Boxes—Sentinels of the Fire Department —are continuously On Guard. In nearly 2000 municipalities—in many instances for more than 60 years—these Sentinels have been protecting the factories, commercial establishments, institutions, and homes near which they are stationed.

Irrespective of the hour or weather conditions, the Sentinel is always On Guard — always ready — to instantly sound the alarm and direct the fire-fighting forces to the scene of fire.

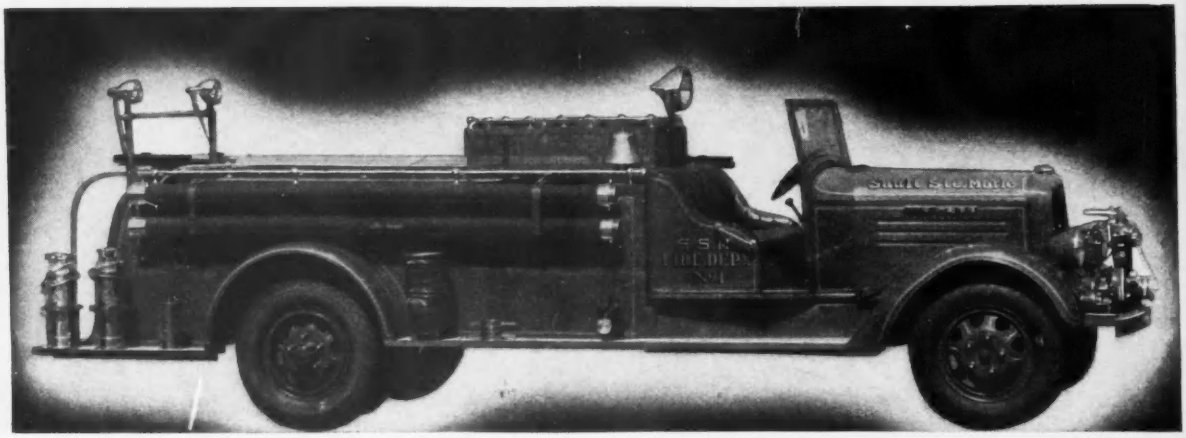
Write for 40-page descriptive catalog.

The Vitaguard Fire Alarm System is designed especially for Volunteer Fire Departments.

THE GAMEWELL COMPANY

NEWTON UPPER FALLS, MASSACHUSETTS

BARTON FIRE PUMPS



CENTRIFUGAL TYPE - - - - FRONT-MOUNTED

Marvelous Performance at LOW COST!

Barton Fire Pumps are recognized the world over as the best and most economical answer to the majority of fire protection problems.

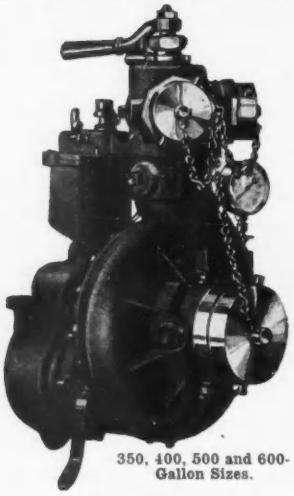
Unlike rotary and piston types, a modern Barton Centrifugal Pump has NO PARTS SUBJECT TO DAMAGE OR EXCESSIVE WEAR when pumping the dirtiest water.

Thus with a Barton you are not limited to pumping from city hydrants. In fact, every day Barton Pumps—automatically primed—are called upon to fight country and suburban fires, delivering huge volumes of water at smashing pressures from ponds, cisterns, rivers, etc.

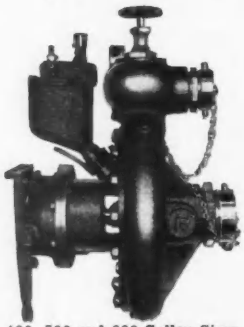
Any Barton Pump can be completely installed on a standard truck WITHOUT A SINGLE CHASSIS CHANGE. A good mechanic can do the entire mounting job in a few hours—entire expense but a few dollars.

New Edition (No. 4) of Bulletin 75 Contains Valuable Fire Stream Data

Write for your copy today! Learn about these wonderful Barton Pumps—how you can effect BIG SAVINGS and still have the finest pumping equipment. And, besides, our copyrighted Fire Stream Data will be found very useful.



350, 400, 500 and 600-Gallon Sizes.



400, 500 and 600-Gallon Sizes.

U-TYPE PUMPS

with Built-in-Gear-Drive for High Pressures at LOW Motor Speeds

This is the Barton DeLuxe Line —"World's Finest Front-Mounted Fire Pumps." All sizes Underwriters' tested. All ratings based on pumping from suction. When pumping from hydrant, every size delivers far in excess of its rating. Built-in Gear-Drive means that truck motor operates at approximately one-half pump speed. With a U-Type Barton Pump wide open, THE MOTOR LOAFS ALONG UNDER NO STRAIN.

F-TYPE PUMPS

with Direct-Drive

These three Barton Fire Pumps—also Underwriters' tested — have every feature offered by the U-Type Pumps, except the Gear-Drive. They are Direct-Drive Pumps, operating at direct motor speeds. This construction makes for lower cost. In fact, for the capacities they deliver, the F-type Pumps sell at the very lowest prices on record.

And we also build smaller fire pumps for booster service at even lower prices—ask us about them!

AMERICAN STEAM PUMP COMPANY

BATTLE CREEK, MICHIGAN . . *PUMPS AND PUMPS ONLY SINCE 1873*

PRINTED IN U. S. A.

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